

WHAT IS CLAIMED IS:

1. A device for purifying a liquid stream, comprising:
a filter for passing a liquid stream therethrough to remove impurities therefrom; and
a radiation source disposed to radiate the liquid stream.
2. The device of claim 1, wherein the radiation source is located upstream of the filter.
3. The device of claim 1, wherein the radiation source is located downstream of the filter.
4. The device of claim 1, wherein the radiation source emits ultraviolet radiation.
5. The device of claim 4, wherein the radiation source comprises:
an ultraviolet lamp.
6. The device of claim 5, wherein the radiation source further comprises:

a reflector disposed to reflect the radiation passing through the fluid stream back into the fluid.

7. The device of claim 6, wherein the radiation source further comprises:

a spiral tube located to pass the fluid stream therethrough and between the ultraviolet lamp and the reflector.

8. The device of claim 7, wherein the spiral tube is arranged to surround the ultraviolet lamp and the reflector is arranged to surround the spiral tube.

9. The device of claim 1, wherein the filter comprises:

an inner filter to pass the liquid stream therethrough;
and

an outer filter surrounding the inner filter to pass the liquid stream therethrough and in fluid communication with the inner filter.

10. The device of claim 9, wherein the inner filter comprises:

one or more filters selected from the group comprised of fiber filters, stone filters, carbon filters, and porcelain filters.

11. The device of claim 9, wherein the double filter is formed with an outer layer comprising:

one or more filters selected from the group of materials comprised of porcelain, activated carbon, and polymers.

12. The device of claim 1, wherein the filter comprises:

one or more filters selected from the group comprised of fiber filters, stone filters, carbon filters, polymer filters, and porcelain filters.

13. The device of claim 1, further comprising:

an oxygenation device in fluid communication with the radiation device to mix oxygen into the liquid.

14. The device of claim 13, wherein the oxygenation device comprises:

one or more molecular sieves to extract the oxygen from air by pressure swing adsorption.

15. A method for purifying a liquid stream, comprising:

passing a liquid stream through a filter to remove impurities therefrom; and

exposing the liquid stream to a radiation source to radiate the liquid stream.

16. The method of claim 15, wherein the liquid stream is exposed to the radiation source after passing through the filter.

17. The method of claim 15, wherein the liquid stream is exposed to the radiation source before passing through the filter.

18. The method of claim 15, wherein the radiation source emits ultraviolet radiation.

19. The method of claim 18, wherein the radiation source comprises:

an ultraviolet lamp.

20. The method of claim 19, wherein the radiation source further comprises:

a reflector disposed to reflect the radiation passing through the fluid stream back into the fluid.

21. The method of claim 20, wherein the radiation source further comprises:

a spiral tube located to pass the fluid stream therethrough and between the ultraviolet lamp and the reflector.

22. The method of claim 21, wherein the spiral tube is arranged to surround the ultraviolet lamp and the reflector is arranged to surround the spiral tube.

23. The method of claim 15, wherein the filter comprises:

an inner filter to pass the liquid stream therethrough;
and

an outer filter surrounding the inner filter to pass the liquid stream therethrough and in fluid communication with the inner filter.

24. The method of claim 23, wherein the inner filter comprises:

one or more filters selected from the group comprised of fiber filters, stone filters, carbon filters, and porcelain filters.

25. The method of claim 23, wherein the double filter is formed with an outer layer comprising:

one or more filters selected from the group of materials comprised of porcelain, activated carbon, and polymers.

26. The method of claim 15, wherein the filter comprises:

one or more filters selected from the group comprised of fiber filters, stone filters, carbon filters, polymer filters, and porcelain filters.

27. The method of claim 15, further comprising:

passing the fluid stream through an oxygenation device to mix oxygen into the liquid.

28. The method of claim 27, further comprising:

passing air through one or more molecular sieves to extract the oxygen from the air by pressure swing adsorption.